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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/824,432

04/15/2004

Masahito Ohe

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20457

7590

08/24/2004

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EXAMINER

CHUNG, DAVID Y

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/824,432

Applicant(s)

OHE ET AL.

Examiner

David Y. Chung

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/185,647.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>15 April 2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6 and 10-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Kouno et al. (U.S. 5,818,560).

As to claims 1-3, Kouno et al. discloses a liquid crystal display device having a orientation layer which is irradiated with a laser beam in order to form regions at different imidiation ratios. See column 1, line 35 – column 2, line 24. Kuono et al. discloses that the wavelength of the laser beam for reducing the imidiation ratio is preferably 300 to 400 nm, which is in the UV range. See column 2, lines 55-62. Kuono et al. discloses that the energy density is preferably 1 to 90 mJ/cm². See column 2, lines 62-65. It would have been obvious to one of ordinary skill in the art at the time of invention to make the power of the irradiating light less than mJ/cm² because Kuono et al. discloses an overlapping range.

As to claims 4 and 12, Kuono et al. discloses that the prebaking may be performed by irradiation with a laser beam. See column 2, lines 39-40.

As to claims 5 and 13, Kuono et al. discloses examples of suitable lasers which include He-Ne (column 15, lines 45-50) and KrF (column 16, lines 65-67).

As to claims 6 and 14, Kuono et al. discloses using a XeF laser (column 16, lines 40-45).

As to claims 10 and 11, Kuono et al. discloses that the frequency of the laser beam is a result effective variable dependent on the laser spot diameter and the desired scan speed. See column 14, lines 35-50. It would have been obvious to one of ordinary skill in the art at the time of invention to irradiate the alignment layer with 10 to 100 shots because optimization of a result effective variable has been judicially held to be obvious to those of ordinary skill in the art.

2. Claims 7 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Kouno et al. (U.S. 5,818,560) in further view of Tanaka (U.S. 5,893,990) and Kusumoto et al. (U.S. 6,027,960).

Kuono et al. does not disclose heating the substrate with a movable stage. However, this was conventional at the time of invention as shown by Tanaka and

Kusumoto et al. Tanaka discloses a movable stage 37 that includes heating means for heating the substrates 10, as shown in figures 1 and 2. See column 6, lines 52-61.

Kusumoto et al. discloses keeping substrate 105 at a constant temperature using a heater disposed in table 106, as shown in figure 1. See column 7, lines 50-55. It would have been obvious to one of ordinary skill in the art at the time of invention to heat the substrate with a movable stage because it was simple and cost-effective.

3. Claims 8, 9, 16 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kouno et al. (U.S. 5,818,560) in further view of Gibbons et al. (U.S. 6,061,138).

Kuono et al. does not disclose moving the substrate on a stage during exposure. Gibbons et al. (U.S. 6,061,138) teaches that a means of transporting the substrate relative to the optical radiation (such as a linear translation stage) allows the exposure area to be smaller than the substrate dimension. A complete scan will uniformly exposure the substrate. A further advantage with this approach is that it is compatible with continuous motion assembly lines. See column 5, lines 47-63. It would have been obvious to one of ordinary skill in the art at the time of invention to move the substrate on a stage during exposure because of the aforementioned benefits.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (571) 272-2288. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.

A handwritten signature in black ink, appearing to read 'Dung T. Nguyen', with a long horizontal flourish extending to the right.

**DUNG T. NGUYEN
PRIMARY EXAMINER**